ceiving stations are both tuned to the same frequency. The lamp 43, actuated by the auxiliary switch 42 (Fig. 1) constitutes such an indicator.

The switch 42 is closed to light the lamp 43 whenever an aperture in row H (Fig. 4) of the record strip moves over its associated passage 46 in the control head 39. The perforations in row H of the record strip are so arranged as to light the lamp 43 whenever the operator should not send a control signal. To this end, the perforations in the row H on the record strip occur at the beginning and end of each perforation in the rows D, E, F, and G, and extend between successive, spaced, perforations in these rows (at which times perforations occur in one or more of the rows A, B, and C, which transmit false signals).

The mechanism arranged as described, functions to light the lamp 43 for a short time during each transition from one to another of the useful channels D, E, F, and G, to warn the operator not to transmit a control impulse at the moment of transition from one frequency to another. The lamp 43 remains lighted throughout periods when the transmitter is tuned to transmit in any one of the channels A, B, or C. The operator will, of course, occasionally transmit impulses while the transmitter is tuned to one of the channels A, B, or C, to mislead the enemy, but he will know, by the fact that the lamp 43 is lighted, that these impulses will not affect the torpedo.

It will be understood that many variations from the construction shown can be made without departing from the invention. Thus in order to simplify the drawings a record strip having only eight rows of perforations has been illustrated. However, as previously mentioned, similar record strips employed in player pianos now have as many as 88 rows of perforations, and a similar number could be employed in the present system to provide a large number of useable channels, to which both the transmitting and receiving stations can be tuned, and also a large number of auxiliary channels at the transmitter for sending false signals.

If desired, the perforations corresponding to the false signals, may be omitted from the record strip at the receiver. However this is not necessary. The record strip at the transmitting and the receiving stations can be identical in all respects, and any number of rows of perforations in the record strip at the receiving station can be rendered ineffective by blocking the passages 46 in the receiving head that correspond to the false channels. It will also be obvious that the control heads 39 and 39' at the transmitting and receiving stations, respectively, can be identical but the contact springs 54 and 58 (Fig. 6) at the receiver can be left disconnected in those channels in which false signals are transmitted.

A very important feature of our system is that only relatively few and relatively short signals need be transmitted. Thus it is necessary only to close one of the keys L or R momentarily to deflect the rudder 83 by one increment in either direction. The transmission of a very short impulse may not be discovered by the enemy at all. Even if the enemy should pick up one of the impulses transmitted, he would not know whether it was an effective signal or a false signal. Furthermore, it is quite possible to so arrange the records that the receiver is never twice tuned to the same frequency.

Although the invention has been explained by describing in detail its application to the control of a torpedo or other craft where it is necessary to steer in only one dimension, it will be obvious to those skilled in the art that by using a large number of modulation frequencies, additional functions can be performed. Thus by using four modulation waves having frequencies of say 100-cycles, 500-cycles, 1,000-cycles and 2,000-cycles, respectively, and using appropriate filters at the receiving station, it is obvious that two rudders can be controlled. This would be desirable when controlling aerial torpedoes or other types of craft in which control in a vertical direction, as well as in a horizontal direction, is desirable. There is no particular limit to the number of control channels that can be used with our invention.

It is also to be understood that other methods of modulation than the conventional one shown, including frequency modulation or phase modulation, can be employed in our system.

The expression "carrier wave," as used in the claims, is intended to define the unmodulated wave when phase or frequency modulation is employed.

Various other departures from the exact system described will be apparent to those skilled in the art, and the invention is, therefore, to be limited only as set forth in the appended claims.

We claim:

1. In a secret communication system, a transmitting station including means for generating and transmitting carrier waves of a plurality of frequencies, a first elongated record strip having differently characterized, longitudinally disposed recordings thereon, record-actuated means selectively responsive to different ones of said recordings for determining the frequency of said carrier waves, means for moving said strip past said record-actuated means whereby the carrier wave frequency is changed from time to time in accordance with the recordings on said strip, a receiving station including carrier wave-receiving means having tuning means tunable to said carrier wave frequencies, a second record strip, record-actuated means selectively responsive to different recordings on said second record strip for tuning said receiver to said predetermined carrier frequencies, and means for moving said second strip past its associated record-actuated means in synchronism with said first strip, whereby the record-actuated means at the transmitting station and at the receiving station, respectively, are actuated in synchronism to maintain the receiver tuned to the carrier frequency of the transmitter.

2. Apparatus as described in claim 1, in which said differently characterized recordings on said record strips are distinguished by being differently laterally displaced from each other, and said record-actuated means are selectively responsive to the lateral positioning of said recordings.

3. Apparatus as described in claim 1, in which said record strip comprises a ribbon having longitudinally extending slots therein differently characterized by being differently laterally positioned on said ribbon, and each said record-actuated means includes a plurality of movable elements each movable to tune its associated generating or receiving means to a different one of said frequencies, and means for selectively moving said elements in accordance with the lateral positioning of the slots in said ribbon.

4. In a system of the type described, including a control station and a movable craft to be con-